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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,722	01/30/2006	Hitoshi Nakajima	040894-7232	5604

9629 7590 04/07/2009

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EXAMINER	
HAN, KWANG S	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
04/07/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,722	NAKAJIMA ET AL.	
	Examiner	Art Unit	
	Kwang Han	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

CATALYST FOR FUEL CELL AND ELECTRODE USING THE SAME

Examiner: K. Han SN: 10/534,722 Art Unit: 1795 April 7, 2009

DETAILED ACTION

1. The Applicant's amendment filed on December 3, 2008 was received. Claims 1, 3, 7, and 8 were amended. Claim 11 was added.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

3. The objection to claim 3 has been withdrawn in view of Applicant's amendment to claim 3.

Claim Rejections - 35 USC § 112

4. The claim rejections under 35 U.S.C. 112, second paragraph, on claims 1-10 are withdrawn, because claims 1, 3, 7, and 8 have been amended and in view of Applicant's remarks.

Claim Rejections - 35 USC § 102

5. The claim rejection under 35 U.S.C. 102(b) as being anticipated by Otomo et al. on claims 1-10 is withdrawn, because the independent claim 1 and claims 3, 7, and 8 have been amended.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otomo et al. (JP 2002-134122, machine translation) in view of Li (US 6136469).

Regarding claims 1 and 3, Otomo et al. is directed towards a fuel cell material comprised of the following:

- a solid [0025] heteropolyacid catalyst [Abstract],
- including a noble metal [0011],
- a transition metal [0012], and
- a molecular weight between 800 to 10000 (molecular weight of working example [0045] $H_3PW_{12}O_{40}$-Pt-C, MW = 3093).

Otomo is silent towards the heteropolyacid catalyst being a partial salt with an alkali metal selected from sodium, potassium or combinations thereof.

Li teaches a solid electrolyte for an electrochemical cell comprised of a polyanion-based compound (heteropolyacid) with crystals having defects in the structure (partial salt; 1:39-2:20) having an metal ion including ammonium, a group 1A element (sodium, potassium) and group 2A element (alkali earth metal) because these defects result in better ion conduction pathways. It would have been obvious to one of ordinary skill in the art at the time of the invention to have the solid heterpolyacid of Otomo to have a defect structure (partial salt) in the fuel cell material because Li teaches the partial salt of a heteropolyacid solid crystal results in better ion conduction pathways.

Regarding claims 2 and 6, Otomo et al. discloses a fuel cell heteropolyacid catalyst which includes a noble metal including Ru, Pt [0011] and a transition metal including Mo, W, Nb, and Ta [0012].

Regarding claim 4, Otomo et al. discloses a polyacid having a Keggin structure [0014].

Regarding claim 5, Otomo et al. discloses a heteropolyacid [Abstract] where one of the noble metal [0012] (platinum or palladium substituted for hydrogen) is substituted in a skeleton of the heteropolyacid.

Regarding claim 7, Otomo et al. discloses an electrode with the heteropolyacid being held on the surface of a carbon electrode [0041, 0046] (base material, carbon paper).

Regarding claim 8, Otomo et al. discloses a mixture of the solid heteropolyacid for a fuel cell with a conductive powder (carbon) and a binder (Nafion) [0045-0047].

Regarding claim 9, Otomo et al. discloses a conductive powder which is carbon [0045].

Regarding claim 10, Otomo et al. discloses a binder that is an organic polymer [0046] (Nafion).

Regarding claim 11, While the prior art does not explicitly teach the cation to be insoluble in water, these properties are considered inherent in the prior art barring any differences shown by objective evidence between (the object) the partial salt heteropolyacid catalyst disclosed in the prior art and the applicant. As (the object) catalyst taught by the prior art and the applicant are identical within the scope of claim 1, Otomo modified by Li inherently teaches that the partial salt heteropolyacid comprises cations insoluble in water.

Response to Arguments

9. Applicant's arguments with respect to claim 1-10 have been considered but are moot in view of the new ground(s) of rejection.

10.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795